



TRANSFORMATIVE CLIMATE COMMUNITIES REPORT:

prepared for the South Los Angeles Climate Commons

EXECUTIVE SUMMARY

In October 2018, the City of Los Angeles Planning Department partnered with the Los Angeles County Metropolitan Transportation Agency (Metro) and several community-based organizations to develop the South Los Angeles Climate Commons, a collaborative that aims to address economic and environmental sustainability and climate justice in neighborhoods adjacent to the Active Transportation Rail to River Corridor. Lead community-based partners for this process included: the South Los Angeles Transit Empowerment Zone (SLATE-Z); Strategic Concepts in Organizing and Policy Education (SCOPE); Strategic Actions for a Just Economy (SAJE); the Los Angeles Neighborhood Land Trust; T.R.U.S.T. South LA; and the Brotherhood Crusade.

Funded through a Transformative Climate Communities (TCC)¹ planning grant, the Commons spent the last year undertaking a community engagement process to determine community priorities in three thematic areas:

- 1. Parks & Housing:** focused on empowering existing community residents to obtain and maintain affordable and environmentally sustainable housing in the wake of expanding transit and associated commercial developments;
- 2. Land Use & Jobs:** focused on increasing economic mobility for residents through workforce development and empowering local businesses to develop environmentally sustainable practices; and
- 3. Air Quality, Transportation & Community Health:** focused on understanding the intersection of greenhouse gas reduction and community health.

“Our vision is guided by the values of shared economic prosperity, environmental health, and community stewardship, building towards collective ownership, equitable capital absorption capacity, and common access to opportunity and governance.”

—*South LA Climate Commons Partners*

Between August and November 2020, a research team from the USC Sol Price Center for Social Innovation conducted data analyses across a variety of sources to support the work of the South LA Climate Commons. By analyzing key metrics within the Commons’ three identified thematic areas, practitioners can better understand the complex interplay between housing, workforce and economic development, and the amount of greenhouse gas emissions produced by people traveling in and out of the Corridor to work. This has critical implications for responsive policymaking in this geography.

The following sections in this report describe the geography and demographic overview of the study area, and key findings from each of the three thematic areas: Parks & Housing, Land Use & Jobs, and Air Quality, Transportation & Community Health. The report concludes by discussing challenges and opportunities that these data highlight.

¹ *Transformative Climate Communities is a program administered by the California Strategic Growth Council that empowers the communities most impacted by pollution to choose their own goals, strategies, and projects to reduce greenhouse gas emissions and local air pollution.*

MAP 1: Active Transportation Rail to River Corridor



BACKGROUND

The Los Angeles County Metropolitan Transportation Agency (Metro) is currently overseeing significant expansions to the County's transportation infrastructure, including the expansion of rail and bus lines and the development of bike lanes and pedestrian walkways throughout the County. In 2012, Metro began

assessing the feasibility of converting a strip of Metro-owned land in the South Los Angeles neighborhood into an active transportation corridor, an off-street facility for pedestrians and bicyclists that provides connections to public transit stops and other key destinations. The project, known as the Active Transportation Rail to River Corridor, will provide new off-road bicycle and pedestrian linkages, including connections to the Los Angeles River and its bike path, as well as connections to multiple Metro and municipal bus lines and two major Metro rail lines. A map of the project is shown in Map 1 above.

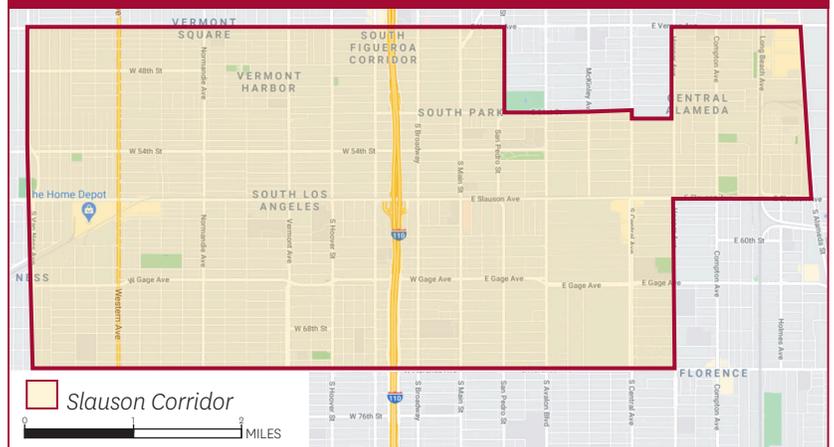
PROJECT GEOGRAPHY

The area of focus, referred to in this report as the Slauson Corridor, or simply "the Corridor," is a 7.8 square mile area in South Los Angeles (Map 2). The Corridor is bounded on the west by Van Ness Ave, on the South by Florence Ave, on the east by Central Ave and Alameda St, and on the north by Vernon Ave. It contains 34 census tracts² and represents a significant portion of the 10-mile Active Transportation Rail to River Corridor (Map 1).

DATA AND METHODS

The majority of the information highlighted in this report was compiled by aggregating publicly available data at the census tract or census block level within the study area. Appendix 1 provides a full list of data sources used in the report.

MAP 2: Slauson Corridor Study Area



² The majority of census tracts fit fully within the study area, however, tracts 229300 and 229200 extend slightly beyond the boundaries. Wherever possible, data was analyzed at the census block level to maximize precision within the study area. If data isn't available at the census block level, census tracts were used.

COMMUNITY DEMOGRAPHICS

According to 2018 estimates, the Slauson Corridor is home to just over 149,500 people, making up approximately 4% of the population in the City of Los Angeles. Since 2010, the population has increased by roughly 7%, more than double the rate of the countywide population increase of 3% over the same time period. Approximately 78% of people in the Slauson Corridor identify as Hispanic or Latino, and an additional 19% identify as Black or African American. The racial and ethnic makeup of the corridor has remained relatively steady over the last decade, with a slight increase in the number of people identifying as Hispanic/Latino (five percentage points) and a slight decrease in the number of people identifying as Black/African American (five percentage points).

Immigration & Languages Spoken

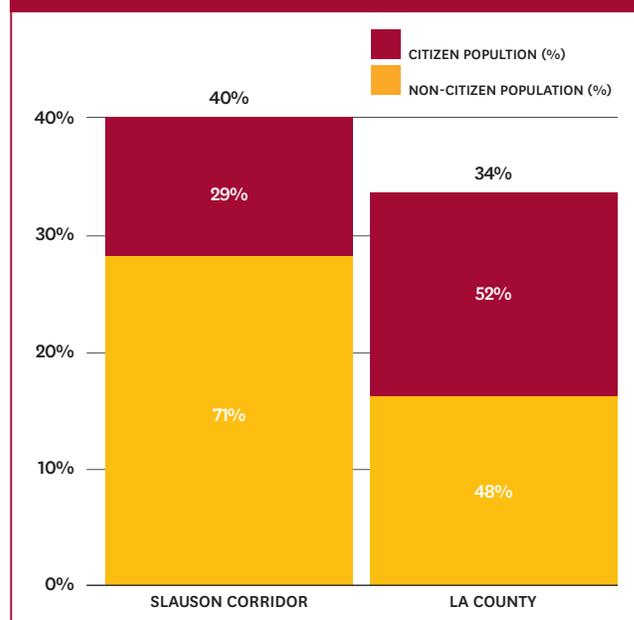
Approximately 40% of Slauson Corridor residents are first generation immigrants, which is just over the County average of 34%. 71% of immigrants in the Slauson Corridor are not naturalized U.S. citizens, compared to 48% countywide. Many non-citizen immigrants are documented and living legally in the U.S.³; however, without citizenship, this population cannot access important civic benefits such as the ability to vote in elections, run for office, and receive federal benefits and scholarships.

According to 2018 data, 75% of people in the Slauson Corridor speak mostly Spanish at home; however, many households have members who are bilingual in English as well. Just 17% of households in the Slauson Corridor reported having no family member that speaks English “very well” as a second language, slightly higher than the county average of 13%.

Age Distribution and Families with Children

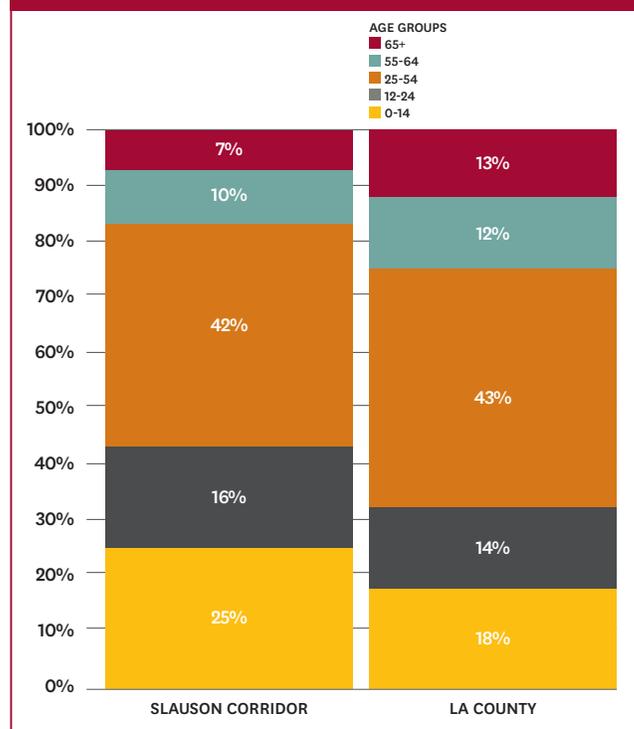
The population in the Slauson Corridor skews slightly younger than the rest of LA County. Approximately 42% of people in the Slauson Corridor are considered to be of “prime working age” (ages 25 to 54), which is nearly identical to the County average. However, significantly more Slauson Corridor residents are under the age of 24 (41%) compared to the County average (32%), suggesting that investing in education and workforce development could have an outsized impact in this geography as more young people enter into the workforce over the next decade.

FIGURE 1: Immigrant Population
Slauson Corridor & Los Angeles County, 2018



SOURCE: 2018 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2: Age Distribution
Slauson Corridor & Los Angeles County, 2018



SOURCE: 2018 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

³ Non-citizen immigrants encompass a wide group of people, including permanent U.S. residents with authorization documents, temporary migrants such as foreign students, humanitarian migrants such as refugees, and migrants without authorization documents.

Slauson Corridor neighborhoods are home to more families with children than other parts of the County. 39% of households in the Slauson Corridor have a child under the age of 18, compared to 29% of households across the County. Further, approximately half of households with children in the Slauson Corridor are headed by a single parent (compared to 32% countywide).

Income and Education

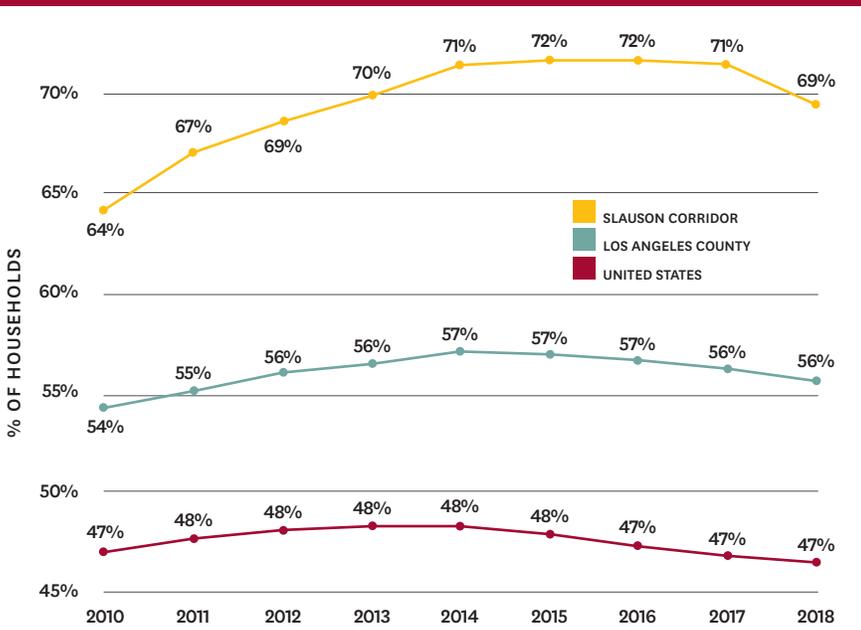
According to 2018 estimates, the median household income in the Slauson Corridor is \$36,544, significantly less than the LA County median income of \$64,251. Like many parts of LA County and the U.S. as a whole, the median household income in the Slauson Corridor began declining in the beginning of the decade, due to the Great Recession, and has since recovered to just above 2010 levels after adjusting for inflation.

Approximately 7% of Slauson Corridor residents over the age of 25 have a Bachelor’s degree, compared to 32% of adults countywide. Additionally, just under half of Slauson Corridor residents over 25 did not receive a high school diploma. However, educational attainment in the neighborhood has been increasing and will likely continue to do so. According to 2018 data, 36% of Slauson Corridor residents between the ages of 18 and 24 are enrolled in school.⁴ This represents a significant increase from 2010, when just 21% of young people were enrolled in school.

PARKS & HOUSING

Although the research on the displacement of low-income communities as a result of transit-oriented development is still emerging, a recent comprehensive literature review found a positive relationship between proximity to new transit developments and residential displacement (Padeiro, et al, 2019). Given the potential for displacement of low-income communities around new public transit developments, the Parks & Housing working group of the South LA Climate Commons is focused on empowering Slauson Corridor residents to obtain and maintain housing in their community. To provide a data-backed picture in support of those efforts, this section provides metrics on housing affordability and stability in the Slauson Corridor.

**FIGURE 3: Change in Rent-Burdened Households
Slauson Corridor & Los Angeles County, 2018**



SOURCE: AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

As of 2018, there were 39,896 housing units in the Slauson Corridor. Since 2010, there has been a 2% increase in the number of housing units in the area. By comparison, the number of households has increased by 5% over the same time period, suggesting that housing supply may not be keeping up with the increasing demand in the neighborhood.

According to 2018 data, 65% of households in the Slauson Corridor are renters, compared to 54% of households countywide. Rental housing can provide more flexibility than homeownership; however, renters are also more susceptible to displacement as a result

⁴ Vocational and trade schools are not included in this percentage.

of changing neighborhood conditions. A recent study found that gentrification, defined as the migration of affluent individuals into working-class neighborhoods, leads to more renters reporting “involuntary moves” but has no effect on homeowners moving (Martin & Beck, 2018).

As of 2018, 69% of renter households in the Slauson Corridor are rent-burdened, defined as a household paying more than 30% of its monthly income on rent and utilities. Across Los Angeles County, more households are rent-burdened than the national average; however, the share of households who are experiencing rent burden both in Los Angeles and nationally has remained relatively stable since 2010. By contrast, the share of rent-burdened households in the Slauson Corridor has been trending upwards since 2010, as shown in Figure 3 to the right.

LAND USE & JOBS

The Land Use & Jobs working group of the South LA Climate Commons is focused on understanding the intersection of land use and economic mobility for Slauson Corridor residents. This section provides an overview of land zoning restrictions in the Slauson Corridor followed by an analysis of the industries located in the Corridor and the industries employing Corridor residents.

TABLE 1: Land Zoning Classifications, Slauson Corridor and the City of Los Angeles

ZONING CLASSIFICATION	SLAUSON CORRIDOR	CITY OF LOS ANGELES ⁵
Commercial	12%	6%
Industrial	13%	7%
Open Space	2%	20%
Public Facilities	10%	7%
Single Family Residence	17%	44%
Multiple Family Residence	46%	13%

SOURCE: CITY OF LOS ANGELES OPEN DATA PORTAL

Land Zoning

Zoning refers to local laws or regulations that dictate how land parcels can or can’t be used. The Slauson Corridor falls under the jurisdiction of the City of Los Angeles zoning requirements.

Table 1 below shows the

share of land in six major zoning classifications for both the Slauson Corridor and the City of Los Angeles as a whole. Refer to Appendix 1 for a description of each zoning classification.

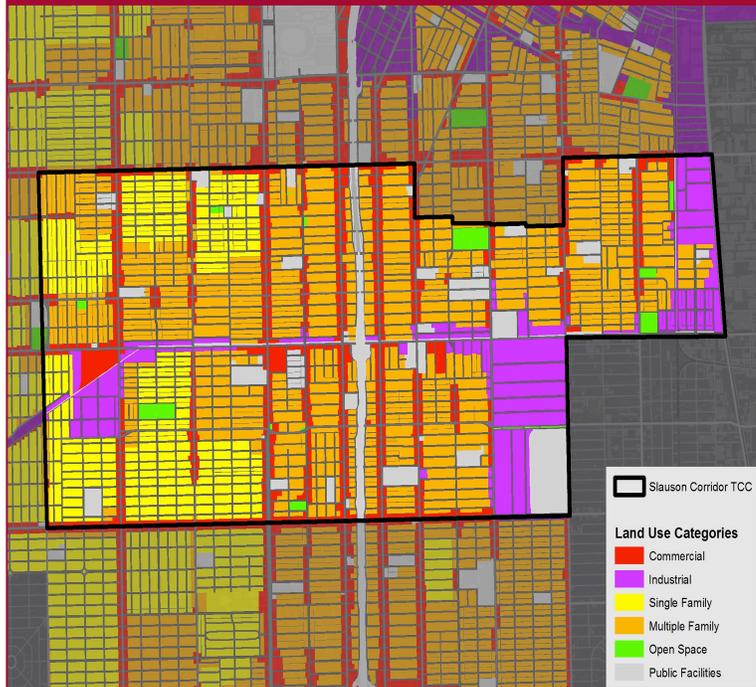
As shown above, 63% of the land in the Slauson Corridor is zoned for residential use, just above the citywide rate of 57%. Notably, the vast majority of residential land in the Slauson Corridor is zoned for multifamily housing, creating the conditions for higher population density in residential areas. By contrast, the majority of residential land across the City is zoned for single family residences.

Another striking difference between the citywide zoning and that of Slauson Corridor is the designation for open space—just 2% of the Slauson Corridor is designated as open space, compared to 20% of the City. While it’s important to note that the zoning for open space in the City includes large areas of greenspace like Griffith Park, this discrepancy is still worth uplifting.

Map 3 below shows the geographic distribution of zoning classifications in the Slauson Corridor, with areas in green showing parks and open space. A visual inspection of the map indicates that the vast majority of land zoned for residential use is not within reasonable walking distance to a park or open space. This is particularly consequential in areas zoned for multiple family residences, as households in such areas are less likely to have access to greenspace, such as a yard, on their residential property.

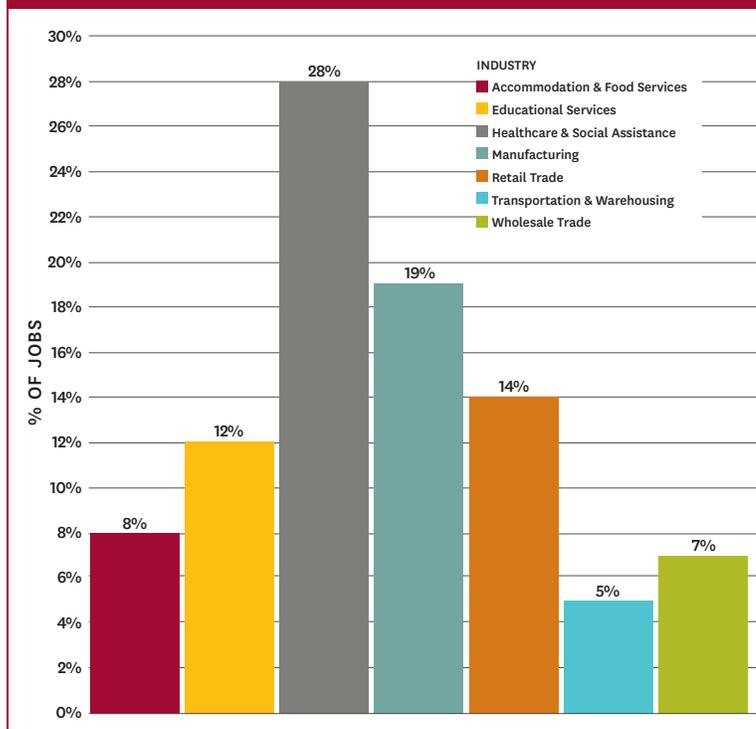
⁵ Approximately 3% of land in the City of Los Angeles is zoned for Parking and Commercial-Industrial use. Because the Slauson Corridor does not include either of those zoning categories, they are omitted from the chart for ease of reading.

MAP 3: Zoning Classifications in the Slauson Corridor



SOURCES: CITY OF LOS ANGELES OPEN DATA PORTAL, ESRI

FIGURE 4: Top Industries Located in the Slauson Corridor, 2017



SOURCE: LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS (LEHD) ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES) WORKPLACE AREA CHARACTERISTICS, 2017

Finally, approximately 25% of land in the Slauson Corridor is zoned for commercial or industrial use—nearly double the citywide rate. This zoning structure creates an opportunity for a mixed-use neighborhood, where residents could potentially live and work in the same community, depending on the types of businesses located in the community and the skillsets of resident workers. To that end, the next sections examine the overlap between the types of businesses located in the Slauson Corridor and the industry occupations of the neighborhood’s residents.

Industries Located in the Slauson Corridor

As of 2017, there were approximately 18,400 jobs in the Slauson Corridor⁶, 93% of which are concentrated across seven industries. As shown in Figure 4 to the right, the Manufacturing and Healthcare/Social Assistance sectors alone account for nearly half of the jobs in the Slauson Corridor.

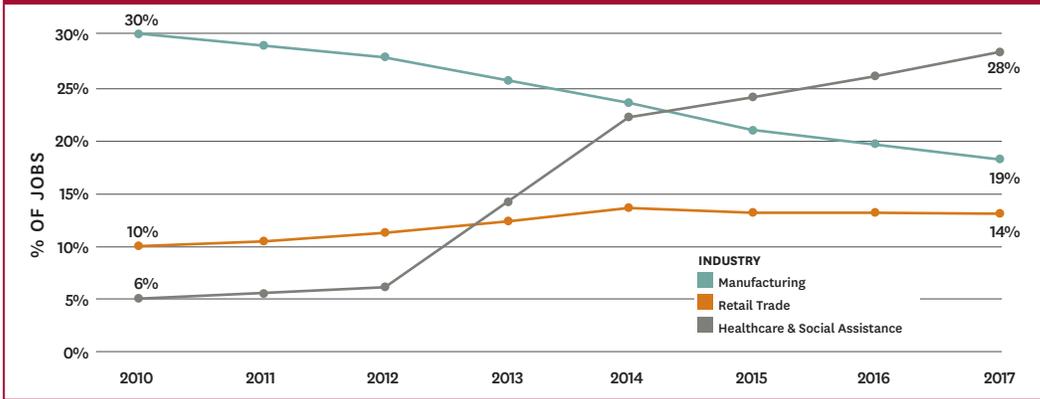
Notably, these two sectors have also seen the largest change in the number of jobs in the area. In 2010, there were approximately 975 jobs in the Healthcare/Social Assistance sector, making up just 6% of all jobs in the area. By 2017, the number of jobs in this sector had increased to over 5,200, making up 28% of all jobs in the neighborhood. By contrast, the number of jobs in the Manufacturing sector declined from over 5,200 in 2010 (30% of all jobs) to approximately 3,400 in 2017. Figure 5 shows the industries with the largest changes in jobs between 2010 and 2017.

Industries Employing Slauson Corridor Residents

This section describes the industries employing the Slauson Corridor residents. Although the data covers residents living in the Slauson Corridor, their jobs are located throughout various parts of Los Angeles County. Unlike the jobs in the Slauson Corridor that are concentrated amongst a few industries, as of 2017 data, the residents of the Corridor are employed more evenly across a range of industries. Figure 6 shows the top industries employing residents in the Slauson Corridor in 2017. The largest industry, Healthcare/Social Assistance, employs approximately 16% of Slauson Corridor residents, followed closely by Accommodation & Food

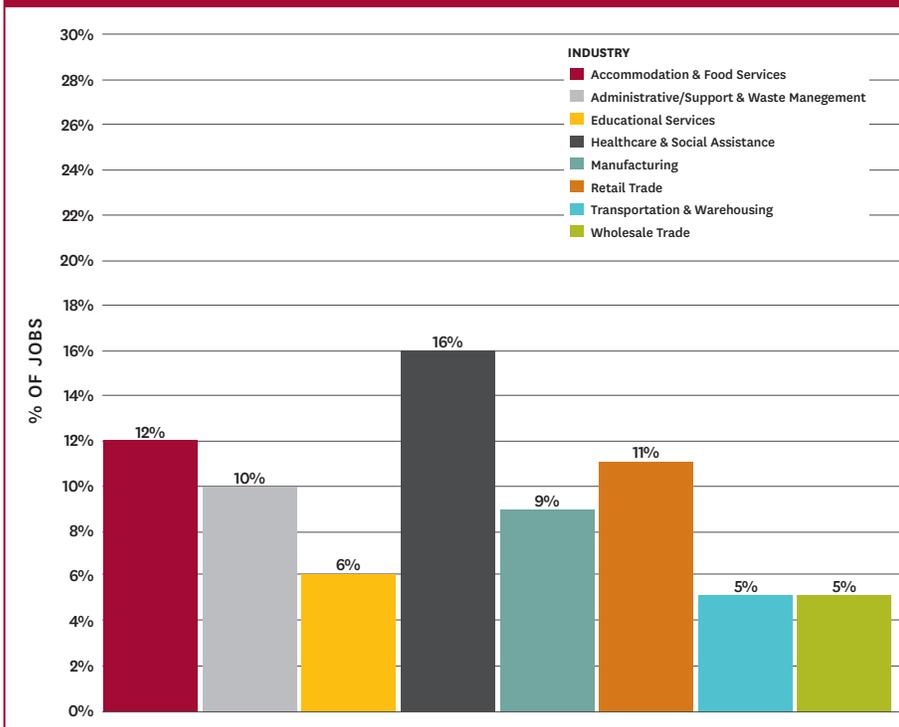
⁶ This data comes from the Longitudinal Employer-Household Dynamics (LEHD) Origin Destination Employment Statistics (LODES) dataset. Its definition of workers excludes proprietors, the unincorporated self-employed, and certain farm and domestic workers.

FIGURE 5: Largest Changes in Slauson Corridor Industries, 2010–2017



Services (12%) and Retail Trade (11%). The industries employing Slauson Corridor residents have remained relatively stable over time. Healthcare/Social Assistance saw the largest growth in the share of residents employed, from 10% in 2010 to 16% in 2017.

FIGURE 6: Top Industries Employing Slauson Corridor Residents, 2017



SOURCE: LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS (LEHD) ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES) WORKPLACE AREA CHARACTERISTICS, 2017

AIR QUALITY, TRANSPORTATION & COMMUNITY HEALTH

The Air Quality, Transportation & Community Health working group of the South LA Climate Commons is focused on understanding the intersection of greenhouse gas reduction and community health. In support of those efforts, this section discusses commuting patterns in and out of the area and concludes with an estimate of the potential impact on greenhouse gas emissions.

Commute Mode of Slauson Corridor Residents

This section discusses commuting patterns of workers living in the Slauson Corridor.⁷ As of 2018, 68% of workers living in the Slauson Corridor drive alone to work, up from 61% in 2010. Public transit use in the neighborhood is high compared to other parts of the

County. In 2018, 13% of workers use public transit to travel to work, which is over double the countywide rate of 6%. However, the share of Slauson Corridor residents using public transit has declined from its 2011 peak of 19%.

⁷ The American Community Survey defines workers as anyone over the age of 16 who worked for pay in the last week.

Los Angeles County is infamous for its heavy traffic and long commute times, and many Slauson Corridor residents have longer commutes than the average worker in the County. As of 2018, 63% of workers spend at least 30 minutes commuting to work, higher than the countywide average of 51%. The share of Slauson Corridor residents experiencing commutes longer than 30 minutes has increased 6% since 2010, in line with a similar increase across the County. Research has shown that regularly commuting for longer than 30 minutes in a car is associated with poor sleep quality and mental health outcomes (Hansson et. al, 2011).

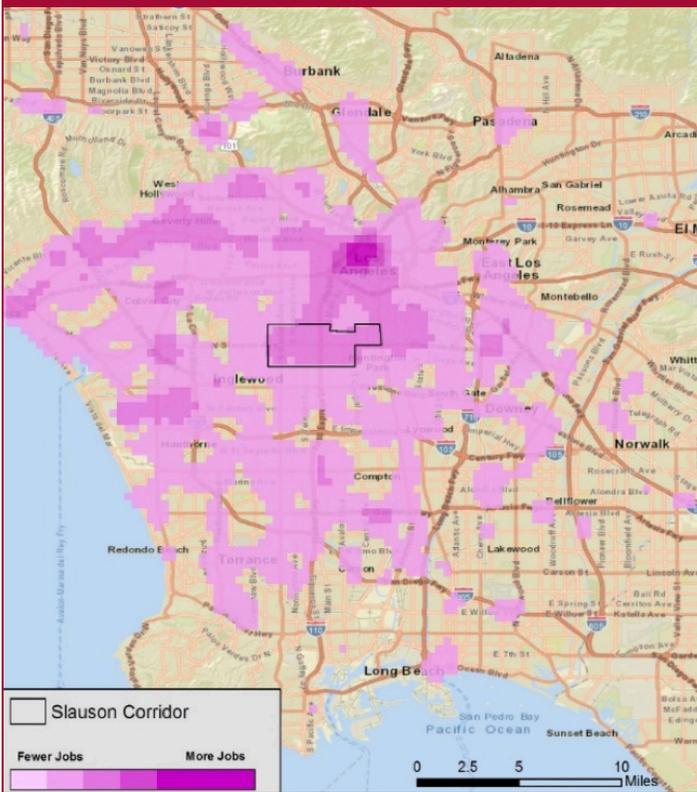
Geographic Commuting Patterns of Slauson Corridor Residents

This section uses data from the Longitudinal Employer-Household Dynamics (LEHD) Origin Destination Employment Statistics (LODES) to show where Slauson Corridor residents commute for work. For ease of visualization, only job locations in Los Angeles County are shown.⁸ In 2017, 40,205 Slauson Corridor residents commuted to jobs outside of the Corridor within Los Angeles County, with an average distance of approximately nine miles between work and home. An additional 1,967 of residents commuted to jobs within the Slauson Corridor, with an average distance of .8 miles between home and work. Map 4 to the left displays the job locations of Slauson Corridor residents in 2017, with darker colors indicating a higher density of jobs in an area. There appears to be significant clustering north of the Slauson Corridor in Downtown Los Angeles.

Household Locations of People Working in the Slauson Corridor

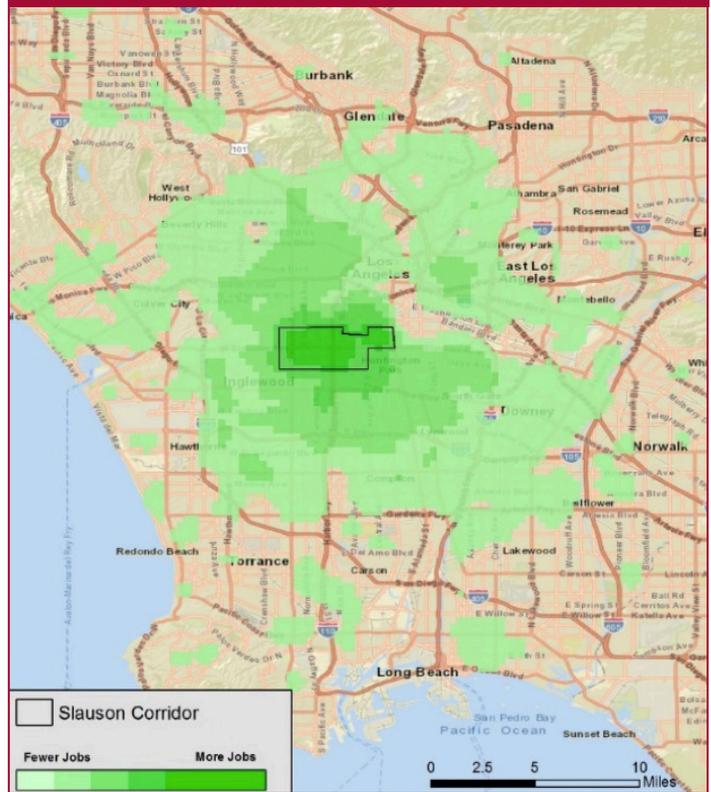
This section uses data from the Longitudinal Employer-Household Dynamics (LEHD) Origin Destination Employment Statistics (LODES) to show where people who work in the Slauson Corridor live. For ease of visualization, only household locations in Los Angeles County are shown.⁹ As noted in the section above, 1,967 people both live and work in the Slauson

MAP 4: Job Locations of Slauson Corridor Residents, 2017



SOURCES: LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS (LEHD) ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES), 2017 ESRI

MAP 5: Household Locations of Slauson Corridor Workers, 2017



SOURCES: SOURCE: LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS (LEHD) ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES), ESRI

⁸ As of 2017 5,234 Slauson Corridor residents had jobs located outside of Los Angeles County.

⁹ As of 2017 2,112 workers commuted from outside of Los Angeles County to work within the Slauson Corridor.

Corridor as of 2017. However, an additional 13,639 people live in other parts of Los Angeles County and commute into the Slauson Corridor for work, with an average distance of roughly nine miles between work and home. Map 5 shows the household locations of people working in the Slauson Corridor, with darker colors indicating a higher density of homes.

Commuting and Greenhouse Gas Emissions

Greenhouse gases, a primary driver of climate change, are caused by human activities that warm the planet by trapping heat into the planet’s atmosphere. In 2018, the United States Environmental Protection Agency (EPA) found that the Transportation sector was the largest contributor to greenhouse gas emissions in the U.S., making up 28% of all emissions in that year (EPA, 2018).¹⁰ Further, within the Transportation sector, 60% of greenhouse gas emission come from passenger cars and light duty trucks (as opposed to freight trucks, commercial aircraft, ships and boats). Given that commuting to and from work is a form of passenger car transportation, commuting likely represents a significant portion of greenhouse gas emissions in the U.S.

This section provides an estimate of the greenhouse gas emissions from commuting across three different groups:

- **Group 1:** Slauson Corridor residents who commute to a place outside of the Corridor for work
- **Group 2:** Workers who live outside of the Slauson Corridor and commute into the Corridor for work
- **Group 3:** Slauson Corridor residents who commute to a place of work within the Corridor

This analysis uses data from the Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES), and unlike the previous two sections, jobs and workers located in the counties surrounding Los Angeles are included to estimate the full environmental impact of commuting. See Appendix 3 for a detailed description of the methods used in this section.

Table 3 below shows the number of commuters, the estimated number of commuters who drive alone, average miles between work and home, total carbon emissions from commuting, and the average carbon emissions per worker per year for each group of commuters in 2017.

TABLE 2: Commuter and Carbon Emissions Estimates, 2017			
	GROUP 1: Residents Commuting Out	GROUP 2: Workers Commuting In	GROUP 3: Residents Commuting Within
Total Workers/Commuters	45,419	15,745	1,967
Estimated Commuters who Drive Alone to Work	29,749	11,121	1,309
Average Distance Between Work & Home	12.84 miles	14.29 miles	.82 miles
Annual Metric Tons of Carbon for Commuters Driving Alone	78,858 metric tons	32,825 metric tons	335 metric tons
Average Annual Metric Tons of Carbon per Commuter	2.65 metric tons	2.95 metric tons	.17 metric tons

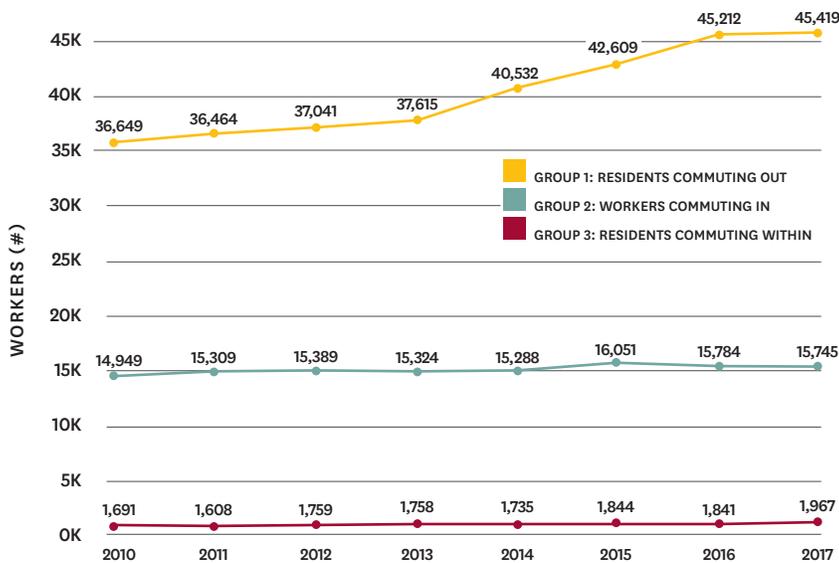
SOURCE: LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS (LEHD) ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES), 2017

While it is difficult to find comparison benchmarks for carbon emissions for commuting related to a specific neighborhood, commuters in and out of the Slauson Corridor in 2017 both had a higher average distance between home and work than the national average of 12 miles (Federal Highway Administration, 2018). This suggests that both groups may have a higher carbon output from commuting than the national average.¹¹

⁸ The EPA defines the Transportation sector as “the movement of people and goods by cars, trucks, trains, ships airplanes and other vehicles.”

⁹ Because our analysis measured the direct distance between the centroids of home and work Census blocks rather than the distance covered by roads, the actual distance travelled is likely even higher than our estimates.

FIGURE 7: Change in Number of Workers Commuting In, Out, and Within the Slauson Corridor, 2010-2017



SOURCE: LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS (LEHD) ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES)

Because workers commuting in to the Slauson Corridor (Group 2) had a higher average distance between home and work, the average carbon emission per worker is higher than either of the other groups, at 2.95 metric tons of carbon per commuter. However, because so many more Slauson Corridor residents are commuting out of the Corridor via car (29,749) as compared to other workers commuting into the Corridor (11,121), this analysis estimates that residents commuting out produced over twice as much total carbon emissions than workers commuting in. Notably, Slauson Corridor residents who work within the Corridor (Group 3) travel a fraction of the distance to work as compared to commuters in the other two groups. They had a

significantly lower average carbon output as a result. This suggests that matching residents to jobs within the Slauson Corridor would have a sizable impact on carbon emissions caused by commuting.

The number of workers who commute into the Corridor has fluctuated over time, with a net increase of 5% (796 people) between 2010 and 2017. By contrast, the number of Slauson Corridor residents who commute out has steadily increased between 2010 and 2017, with a net increase of 27% (9,770 people) during that period. The number of residents who both live and work in the Slauson Corridor increased by 16% (276 people) between 2010 and 2017 but remains a fraction of the number of commuters in the other two groups. Figure 7 shows the change in the number of workers in each of the three groups over time.

As a result of the increase in the number of workers commuting out of the Corridor and the rise of workers driving alone, total carbon emissions from residents in Group 1 has increased significantly over time. This analysis estimates that total carbon emissions from residents commuting out of the Slauson Corridor rose from 55,454 metrics tons in 2010 to 78,858 metric tons in 2017, which is a 42% increase.

Reducing Carbon Emissions

This final section estimates how changes in job placements and resulting commuting patterns could lead to reductions in greenhouse gas emissions. It explores a hypothetical situation where the 15,000 jobs that were previously held by workers living outside of the Slauson Corridor in 2017 are instead employing residents of the Slauson Corridor. In this scenario, approximately 15,000 of the Slauson Corridor residents who were previously in Group 1 (commuting to other parts of the County) are now a part of Group 3 (residents commuting within the Corridor). Because all of the jobs that were previously held by workers living outside of the Corridor (Group 2) are now held by Corridor residents, Group 2 is eliminated entirely in this scenario. Table 4 below shows a summary of the number of workers and estimated carbon emissions in this scenario.

TABLE 3: Hypothetical Commuting and Carbon Emissions

	GROUP 1: RESIDENTS COMMUTING OUT	GROUP 3: RESIDENTS COMMUTING WITHIN
Total Workers/Commuters	29,674	17,712
Estimated Commuters who Drive Alone to Work	19,754	11,791
Annual Metric Tons of Carbon for Commuters Driving Alone	52,363 metric tons	2,006 metric tons

SOURCE: LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS (LEHD) ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES)

As shown in the table above, when all jobs in the Slauson Corridor are employing neighborhood residents, the estimated carbon output from commuting totals just under 55,000 metric tons. This represents a 30% reduction in carbon emissions as compared to the current scenario where the vast majority of jobs in the Slauson Corridor are held by workers who live outside of the Corridor. This analysis is not included to suggest that all 15,000 of the jobs located in the Slauson Corridor could actually be transferred to the neighborhood’s residents, but rather to show that connecting neighborhood residents to existing neighborhood jobs could have a sizable impact on carbon emissions from commuting.

CONCLUSION

The data highlighted in this report helps illuminate the challenges and opportunities ahead for residents and businesses alike of the Slauson Corridor neighborhood. A summary of key takeaways is discussed below.

Challenges

As the data illustrates, challenges are centered around two critical areas, including the supply of equitable and affordable housing and increasing greenhouse gas emissions from commuting. A large population of renters, steadily increasing rent burden, and close proximity to new transit and transit-related development creates real concerns regarding residential displacement. The number of households living in the area has also increased faster than the number of new housing units being built, creating a supply problem that threatens the housing stability of renters and others in this community.

Secondly, commuting via public transit has steadily decreased and more residents are driving alone to work. Greenhouse gas emissions from commuting have steadily increased year after year, primarily due to a higher number of residents gaining employment outside the geographic area of the Slauson Corridor. These data underscore that current policy efforts underway to support the Slauson Corridor community must address housing instability and environmental concerns. To this end, there are numerous opportunities for further exploration, particularly in the areas of neighborhood zoning, workforce development, and youth engagement.

Opportunities

Approximately a quarter of land in the Slauson Corridor is zoned for commercial or industrial use, which is nearly double the citywide rate. This zoning structure creates an opportunity for a mixed-use neighborhood, where residents could potentially live and work in the same community. As shown in the previous section, workers who both live and work in the Slauson Corridor create a fraction of the greenhouse gas emissions of their neighbors who commute to jobs elsewhere in the region. Although relatively few Slauson Corridor residents currently work in the Corridor, they are employed in many of the same industries that are located in the neighborhood, such as Healthcare & Social Services, Manufacturing, Retail Trade, and Accommodation/Food Services. This suggests a possible synergy between the skillsets and knowledge of neighborhood residents and the skills required for jobs located in the neighborhood.

The neighborhood skews younger than the County average, meaning that a large concentration of youth in the Slauson Corridor will age into the workforce over the next several decades. This creates an opportunity for proactive engagement with young residents and local businesses to create a new generation of residents who can both live and work in the neighborhood. For example, apprenticeships and mentorship programs, in partnership with Slauson Corridor businesses, could support the development of a pipeline of qualified young workers who live in close proximity to where they work. This would also support local workforce development, as Slauson Corridor businesses can work to match the skillset of young resident workers with relevant job requirements.

In addition, the number of young adults (18-24) enrolled in school has increased considerably since 2010, meaning that this generation of young adults will likely have higher levels of educational attainment than their parents. This expands possibilities for additional workforce development programs in new industries.

Increased investment in affordable housing and continued investment in public transit infrastructure, including projects like the Active Transportation Rail to River Corridor, are essential components in any plan to expand economic mobility and environmental sustainability in the Slauson Corridor. Under the leadership of the South Los Angeles Climate Commons and with the appropriate resources, investments, and policies, the Slauson Corridor has the capacity to become a healthier and more prosperous home for its residents.

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APPENDICES

APPENDIX 1: Data Sources & Notes

All metrics in the Community Demographics and Parks & Housing sections came from the American Community Survey (ACS). In the Land Use & Jobs section, zoning data was acquired from the City of Los Angeles Open Data Portal, while data on employment came from the Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES). A description of each of these datasets is included below. Data from ESRI was used as a base map for the mapping components.

American Community Survey (ACS)

The ACS is a demographics survey program conducted by the U.S. Census Bureau that gathers information on a range of topics including demographics, education, immigration, employment and housing. Data is gathered for all 50 states each year. This report analyzed data at the census tract level using 5-year estimates in order to ensure statistical reliability for such a small geographic area.

Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES)

This dataset, maintained by the U.S. Census Bureau, combines administrative state data and unemployment insurance wage records with some survey and Census data. Data used in this analysis included:

- **Workplace Area Characteristics (WAC):** lists the total number of jobs by each census block where the employee works
- **Residence Area Characteristics (RAC):** lists the total number of jobs by each Census block where the employee lives
- **Origin-Destination:** links the home and work locations of each employee at the Census block level

City of Los Angeles Zoning & Land Use Designations

- **Commercial:** Commercial uses typically allowed by the Los Angeles zoning code include restaurants, shops, and offices.
- **Industrial:** In Los Angeles, industrial uses are allowed in areas zoned for manufacturing. While allowing for heavy industry, they tend to be occupied by light industrial uses (i.e. food processing, textile plants).
- **Open Space:** Open space land use designation includes things like parks, community gardens, athletic fields and trails, which fall under Parks and Recreation (OS-PR). Additionally, it is also used to designate land for conservation efforts (OS-C), areas with a national forest (OS-NF), and areas managed by the Bureau of Land Management (OS-BLM).
- **Public Facilities:** The public facilities designation is focused on uses that are important to the city's growth and development. This includes infrastructure for things such as drinking water; sanitary sewers; solid waste; utilities; early care and education; and libraries.
- **Single Family Residence:** This use falls under the zoning category R1. It is the most common zoning in Los Angeles and permits one single-family home per lot, with a typical minimum lot size of 5,000 (SF).
- **Multiple Family Residence:** Multi-family residences are allowed in zones classified as RD, R3, R4, and R5, in order of increasing density. The amount of apartments built is controlled through the minimum lot area per apartment allowed in each zone as well as other zoning limitations such as height limits.

APPENDIX 2: Estimating the Size of the Workforce

Estimations of the number of employed workers in the Slauson Corridor vary significantly by source. The American Community Survey, which defines a worker as anyone over the age of 16 who reported working for pay in the last week, reports approximately 57,600 workers living in the Slauson Corridor in 2017. By contrast, data from the Longitudinal Employer-Household Dynamics (LEHD) Origin Destination Employment Statistics (LODES) includes a narrower definition of workers, excluding proprietors, the unincorporated self-employed, and certain farm and domestic workers. LODES reports roughly 49,200 workers living in the Corridor in 2017. While this discrepancy could be due to measurement error in either source, it is also likely an indication of a large number of self-employed entrepreneurs operating informal or unincorporated businesses in the neighborhood.

APPENDIX 3: Methodology for Estimating Greenhouse Gas Emissions from Commuting

To estimate greenhouse gas emissions from commuting, we used data from the Longitudinal Employer-Household Dynamics (LEHD) Origin Destination Employment Statistics (LODES) Origin Destination (OD) dataset, which provides the home and work locations associated with a job at the census block level. Data was calculated for the years 2010-2017, the latest year of data available at the time of this analysis.

Estimating Average Distance Between Home and Work

First, we filtered data to include only those workers who either work or live in a census block within the Slauson Corridor. This created three groups of workers:

- **Group 1:** Slauson Corridor residents who commute to a place outside of the Corridor for work
- **Group 2:** Workers who live outside of the Slauson Corridor and commute into the Corridor for work
- **Group 3:** Slauson Corridor residents who commute to a place of work within the Corridor

Table A1 below shows the total number of workers in each group from 2010-2017.

TABLE A1: Commuting Group Estimates, 2010-2017

COMMUTER GROUP	2010	2011	2012	2013	2014	2015	2016	2017
Group 1: Slauson Corridor Residents Commuting Out	35,649	36,464	37,041	37,615	40,532	42,609	45,212	45,419
Group 2: Workers Commuting In	14,949	15,309	15,389	15,324	15,288	16,051	15,784	15,745
Group 3: Residents Commuting Within	1,691	1,608	1,759	,1758	1,735	1,844	1,841	1,967

SOURCE: LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS (LEHD) ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES)

We conducted a spatial analysis of the distance between all work and home census blocks in ArcMap by creating a direct line between the centroid of each home census block and each corresponding work census block. For each of the three groups, the total distance (measured in miles) between the centroids of all work and home census blocks were summed together and divided by the total number of workers/jobs in the group, giving us an estimate of the average distance between home and work for each of commuter group. Estimates for each group across every year are shown in Table A2 below.

TABLE A2: Average Distance between Home and Work (in miles), 2010–2017

COMMUTER GROUP	2010	2011	2012	2013	2014	2015	2016	2017
Group 1: Slauson Corridor Residents Commuting Out	12.49	12.11	11.85	12.03	12.55	12.55	12.63	12.84
Group 2: Workers Commuting In	14.76	15.45	15.13	14.55	14.91	14.38	14.55	14.29
Group 3: Residents Commuting Within	0.82	0.86	0.83	0.87	0.89	0.85	0.81	0.82

SOURCE: LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS (LEHD) ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES)

Estimating Carbon Emissions from Commuting to Work

Our estimations of carbon emissions from commuting build heavily on the research done by Haas, Miknaitis, Coop, Young and Benedict (2010). Their basic equation converts miles traveled into metric tons of carbon produced per year. The equation we used is shown below:

$$\text{Average Annual Carbon Emissions from Commuting per Worker} = ((\text{Average Distance Travelled} * \text{Annual Trips}) / \text{Fuel Efficiency}) * \text{Emissions Factor of Gasoline}$$

To calculate an estimate of the average miles travelled per year for each commuter group, we doubled the average distance between work and home to account for two trips per day (to and from work) and multiplied the output by 261, the number of working days in a year.¹² We then divided by the average fuel economy of passenger cars reported by the Environmental Protection Agency (22 miles per gallon) to give an estimate of gallons of gasoline used. Finally, we multiplied this output by the emissions factor of gasoline used by Haas, et al. (.0087 metric tons of carbon per gallon) to determine the average annual carbon emissions per commuter in each group.

To determine the total carbon emissions for all commuters in each group, we multiplied the average annual emissions per person by the number of likely drivers in each group. Likely drivers were determined by multiplying the pool of commuters with a distance of greater than 1.5 miles between work and home¹³ by the percentage of people who reported driving alone to work in table B08301 of the American Community Survey (ACS) in each year. For Groups 1 and 3 (residents of the Slauson Corridor), we limited the analysis of ACS data to Slauson Corridor census tracts. For Group 2 (workers commuting from elsewhere in the region), we used the Los Angeles County averages for driving alone reported in the ACS. The two figures below show estimates of likely drivers in each commuter group per year and total carbon emissions from commuting for each group per year, respectively.

TABLE A3: Estimates of Likely Drivers, 2010–2017

COMMUTER GROUP	2010	2011	2012	2013	2014	2015	2016	2017
Group 1: Slauson Corridor Residents Commuting Out	21,505	22,025	22,228	22,414	23,880	26,173	28,782	29,749
Group 2: Workers Commuting In	10,338	10,598	10,655	10,635	10,633	11,232	11,096	11,121

SOURCE: LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS (LEHD) ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES)

¹² This assumes five working days per week with fifty two weeks per year, plus one extra working day, based on guidance from the U.S. Office of Personnel management <https://www.opm.gov/policy-data-oversight/pay-leave/pay-administration/fact-sheets/computing-hourly-rates-of-pay-using-the-2087-hour-divisor/>

¹³ Because the majority of commutes for Slauson Corridor residents travelling to work in the Corridor (Group 3) were less than 1.5 miles, we did not apply this restriction to that group.

TABLE A4: Total Carbon Emissions from Commuting (in metric tons)

COMMUTER GROUP	2010	2011	2012	2013	2014	2015	2016	2017
Group 1: Slauson Corridor Residents Commuting Out	55,453	55,079	54,349	55,657	61,839	67,793	75,010	78,858
Group 2: Workers Commuting In	31,489	33,810	33,280	31,953	32,068	33,340	33,310	32,825
Group 3: Residents Commuting Within	286	283	301	316	317	323	307	334

SOURCE: LONGITUDINAL EMPLOYER-HOUSEHOLD DYNAMICS (LEHD) ORIGIN DESTINATION EMPLOYMENT STATISTICS (LODES)

Limitations

The figures produced above should be considered a rough estimate and make several assumptions. First, the distance between work and home is calculated by drawing a polyline between the census blocks containing the work and home locations and does not calculate distance using actual travel routes to get between the two locations. As a result, our average distance between work and home is likely an underestimate compared to the actual distance driven, indicating that our overall carbon emission estimates are likely lower than actual emissions. Fuel economy is variable across households and impacted by commute time, vehicle age and income level. Improvements in gasoline component makeup can change the amount of carbon produced, tending to lower the carbon emission factor of gasoline over time (Haas, et al, 2010). Finally, according to the EPA, there are other greenhouse gases produced by burning gasoline to power cars. These other gases such as methane (CH₄) and nitrous oxide (N₂O) contribute to climate change, but are emitted at a fraction of the rate compared to the carbon (CO₂) emissions. To this end, other greenhouse gases were not considered in our analysis but will still contribute to the total emissions present from commuters.

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